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Research Article

**A CROSS-SECTIONAL RESEARCH TO INVESTIGATE THE
WAYS TO REDUCE DENTINE HYPERSENSITIVITY
THROUGH TOOTHPASTE**¹Dr Sadia Riaz, ²Dr. Reana Aslam, ³Dr. Hafiz Muhammad Noman Baqa¹Allied Hospital Faisalabad²Dental Surgeon, THQ Hospital Shorkot³MO, RHC Dunga Bunga, Bahawalnagar**Abstract:**

Objective: The objective of this research was to determine DH (Dentine Hypersensitivity) among young restricted their intake of edibles and drinks because of DH.

Patients and Methods: We carried out this cross-sectional research on fifty patients who consisted of males and females 25 each at Services Hospital, Lahore from October 2018 to January 2019. The selection of the sample was random in nature and these participants were selected based on reported hypersensitivity. Patients were divided into two groups who were respectively treated with Sensodyne Rapid Action and Colgate Total Care toothpaste. Visual Analog Scale was used for the measurement of hypersensitivity. Patients were included in the research after informed consent and they were also briefed about the research protocols. The ethical review committee also permitted to complete the research.

Results: Statistical analysis reflects that DH was present among all participants because of attachment loss or periodontal issues. Outcomes also present that use of toothpaste is effective in such cases.

Conclusion: Outcomes indicate that routine use of desensitizing toothpaste is very much effective to reduce the onset of DH among patients than those who are using toothpaste regularly.

Keywords: Attachment Loss, Dentine hypersensitivity (DH), Toothpaste, Sensodyne and Colgate.

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INTRODUCTION:

DH is acute and brief pain in nature, which is produced when dentin is exposed to osmotic, chemical, tactile, evaporative or thermal stimuli [1]. This acute pain is a normal pulpal reaction to the exposed dentine and among the patients experiencing periodontal diseases; such patients are 70% more at DH risk [2 – 5]. The major reason, which attributes to DH is not known; however, a possible reason behind DH is the fluid entering in the dentinal tubules which triggers pain in the receptors in pulpal area [6]. The increase in the hydrodynamic flow is attributed to temperature, fluctuations of humidity, air pressure, osmotic or substitute forces on exterior tooth. DH is also triggered through physical pressure, hot and cold food. The reported proportion in a population is estimated 30% who suffer DH in their lifetime [7]. Various studies report a range of DH (1.1% – 98%); while using different approaches [8, 9]. Universal consideration accounts the onset of DH (10% – 30%) [10, 11]. Any age group can be affected by DH; special consideration is given to the age bracket of (20 to 49) years with the highest onset reported among (30 – 39) years old population [12]. Literature also provides evidence of DH occurrence in the age bracket of (30 – 40) years [13]. The acute diagnosis is crucial for such estimates.

Home and professional remedies are available to counter the onset of DH. Desensitizing toothpaste is a home remedy; whereas, professional treatment includes surgical and laser interventions while using bonding agents and resins [14 – 16]. DH can easily be diagnosed through air blast and by using investigative probe on exposed dentin along with assessment of all pain-affected area [17]. VAS can be used to quantify the severity of pain in various degrees such as slight pain, moderate pain or severe pain [18]. The objective of our research was to determine DH (Dentine Hypersensitivity) among young restricted their intake of edibles and drinks because of DH.

METHODOLOGY:

We carried out this cross-sectional research on a total of fifty patients who consisted of males and females 25 each at Services Hospital, Lahore from October

2018 to January 2019. The selection of the sample was random in nature and these participants were selected on the basis of reported hypersensitivity. Patients were divided into two groups who were respectively treated with Sensodyne Rapid Action and Colgate Total Care toothpaste. Visual Analog Scale was used for the measurement of hypersensitivity. Patients were included in the research after informed consent and they were also briefed about the research protocols. The ethical review committee also permitted to complete the research. Patients were included after meeting inclusion criteria (attachment loss = 4 mm, experienced non-surgical periodontal treatment in the period of last three months, intake of medication, defective restoration, carious tooth and para-functional habits). We did not include all those patients who underwent scaling of teeth in the last three months. The patients were selected in the age bracket of (25 – 55) years with good health with two sensitive teeth while total teeth count was eight in a patient.

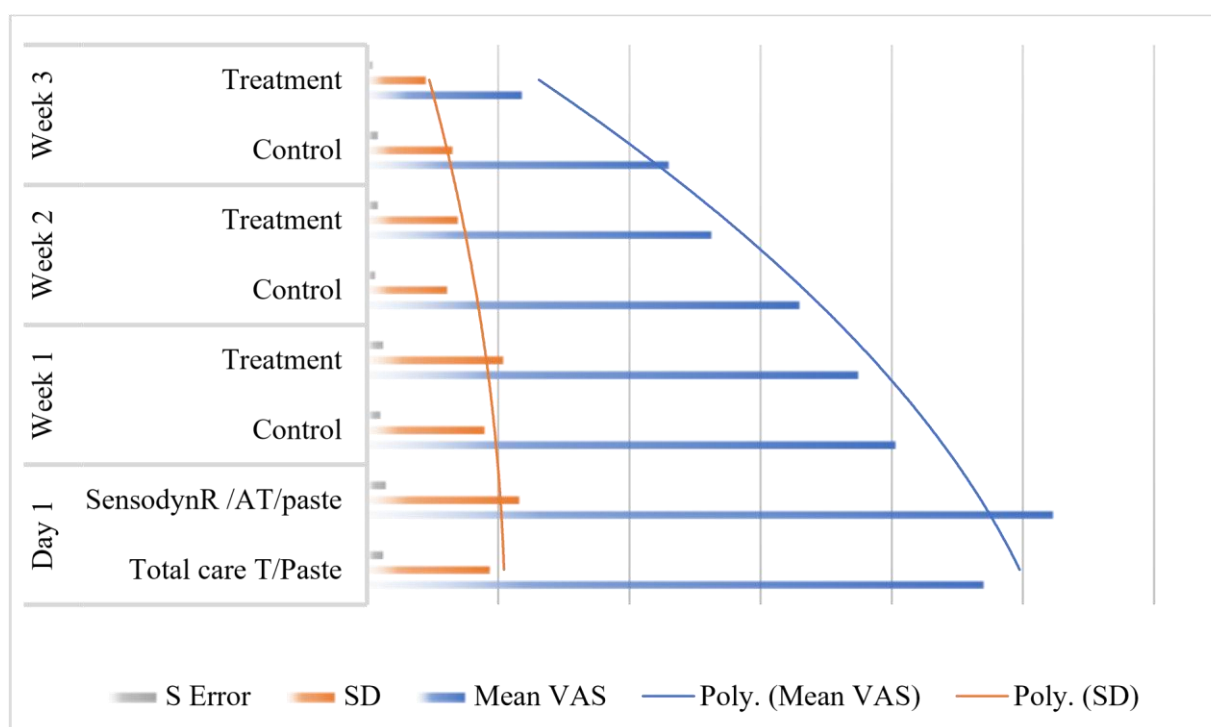
The applied air pressure for ten seconds was 40 p.s.i from one-centimeter distance. VAS was used for the quantification of sensitivity. Every patient was given full mouth polishing, scaling and root debridement. Twice a day brushing was demonstrated through modified Stillman method. Group A and B were respectively prescribed Colgate total care (Sodium Fluoride 0.24%, Triclosan 0.30%, 0.14% w/v fluoride ion) and Sensodyne Rapid action toothpaste (8% strontium hypersensitivity acetate, 1040 ppm fluoride). Statistical analysis was made on SPSS software; whereas, an independent T-test was used to report differences in the scores.

RESULTS:

The statistical analysis reflects that DH was present among all participants because of attachment loss or periodontal issues. Outcomes also present that use of toothpaste is effective in such cases. The outcomes have been tabulated for treatment period with respect to treatment groups while showing standard error, standard deviation and mean VAS (Table – I). We have also assessed group-wise mean VAS score (Table – II). The gender-wise analysis is given in Table – III.

Table – I: Effects of Toothpaste

Treatment Period	Treatment groups	Mean VAS	SD	S Error
Day 1	Total care T/Paste	4.720	0.948	0.134
	Sensodyne /AT/Paste	5.260	1.174	0.166
Week 1	Control	4.040	0.908	0.128
	Treatment	3.770	1.056	0.149
Week 2	Control	3.310	0.638	0.090
	Treatment	2.640	0.715	0.101
Week 3	Control	2.310	0.669	0.095
	Treatment	1.210	0.475	0.067

**Table – II:** Group-Wise Difference

Duration	Group A (VAS)	Group B (VAS)	Difference
Day 1	4.27	5.26	0.54
Week 1	4.04	3.77	-0.27
Week 2	3.31	2.61	-0.67
Week 3	2.13	1.13	-1.1

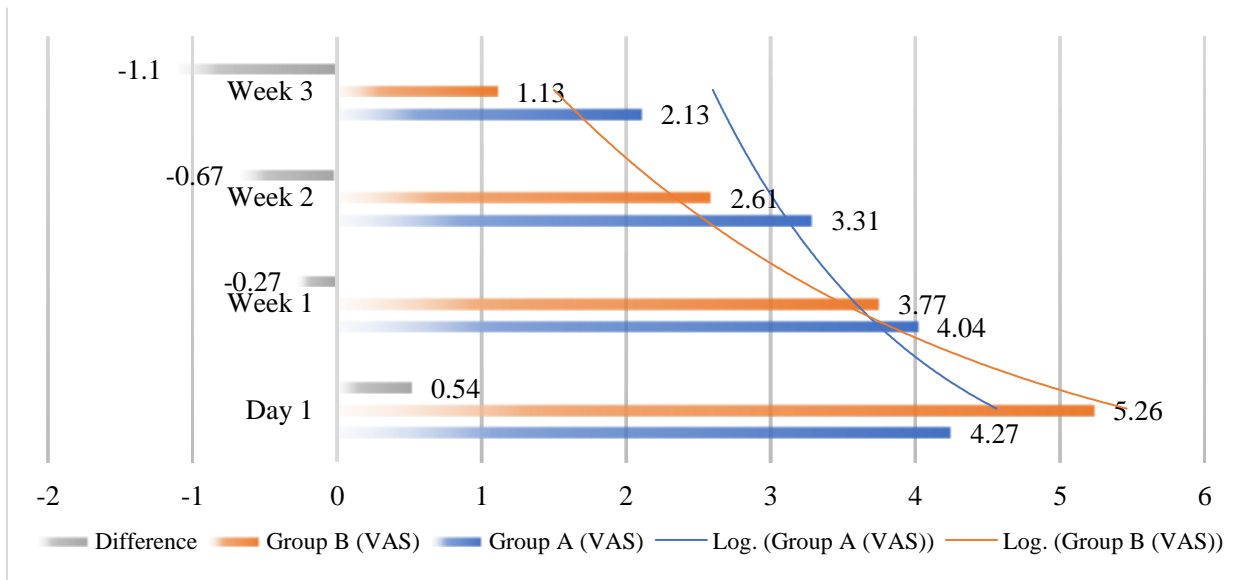
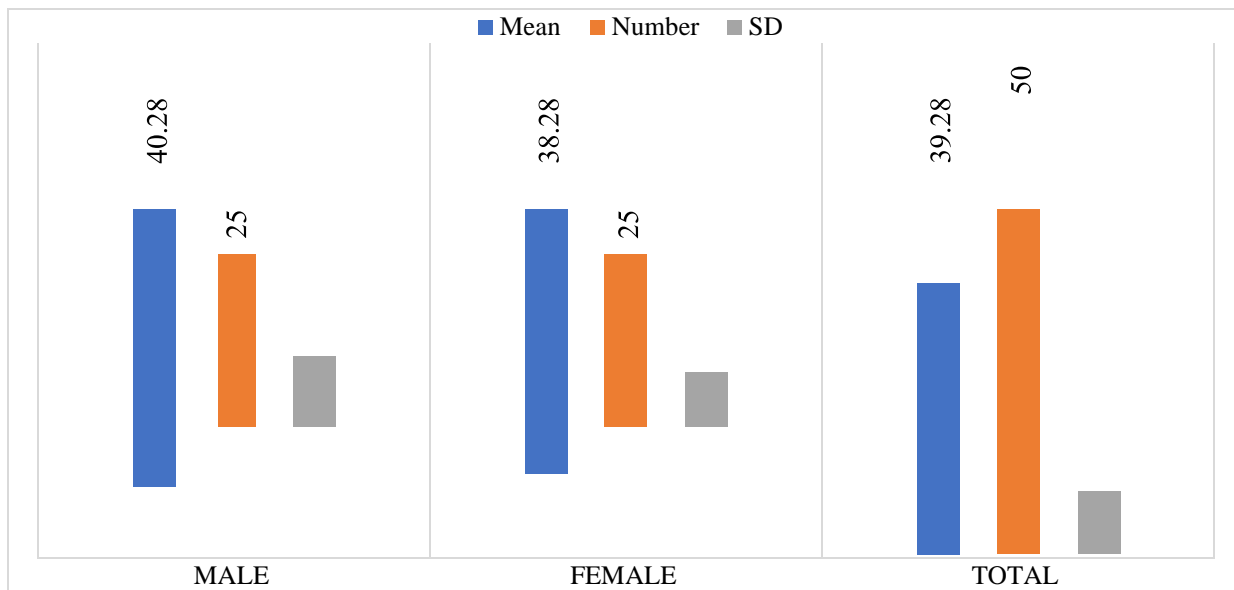


Table – III: Gender-Wise Average Outcomes

Gender	Mean	Number	SD
Male	40.28	25	10.180
Female	38.28	25	7.898
Total	39.28	50	9.073



DISCUSSION:

People try to preserve teeth for prolonged duration to enjoy a healthy lifestyle and aesthetics. It is normal to

receive complaints about the onset of DH due to increased concern about dental health among people which increases the treatment trend among people.

Patients experienced more pain on first treatment day. The onset of pain reduced gradually with the increase in the treatment duration while using variety of toothpaste. Strontium acetate 8% effectively controlled pain than Colgate 0.24% (0.14% w/v fluoride ion). The treatment group experienced less pain than control group. Outcomes also reflected reduced sensitivity because of thermal stimuli. Parkinson also reported similar outcomes with reduced DH onset while using hypersensitivity Strontium acetate by obstructing withstanding acid erosion and the dentinal tubules [19]. According to Mason, 8% Strontium acetate is more effective than containing Sodium fluoride for regular use of six weeks; however, we concluded our outcomes on third week [20]. Orchardson and Gillam reported that an increase in the fluoride concentrations can decrease DH possibly because of calcium fluoride globules precipitation within dentine tubules [21, 22]. Outcomes suggested mean age factor as 39.28 years; the average age of males and females was respectively 40.28 years and 38.28 years within the age bracket of (25 – 55) years which is also supported by other authors [23, 24]. Results indicate more DH sensitivity among males than females on first day of treatment. However, males recovered more than females in the course of prolonged treatment. Amarasena presented different outcomes and showed more DH onset among females than males [25]. Desensitizing toothpaste is more relieving to address dental problems [26].

CONCLUSION:

Home remedy is simple in nature which utilizes desensitizing toothpaste. DH is comparatively better controlled through Sensodyne rapid action toothpaste than Colgate total care. Outcomes indicate that routine use of desensitizing toothpaste is very much effective to reduce the onset of DH among patients than those who are using toothpaste regularly.

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